

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A data broadcast receiving apparatus capable of supporting an interactive service, comprising:

a demultiplexing component to divide signals transmitted from the outside into signals of a kind;

a controlling component to control elements of the data broadcast receiving apparatus, the controlling component further to receive and to output contents of the signals divided in the demultiplexing component;

a download processing component to receive downloadable data of the signals divided in the demultiplexing component, determining the kind of the downloadable data, and performing an upgrade by downloading the downloadable data to provide an upgraded interactive data broadcasting application; and

a mobile terminal accessing component to access a mobile communication network based on the downloadable data and, in response to a user request for accessing a mobile communication network, executing the upgraded interactive data broadcasting application to provide the interactive service to the user using the mobile terminal accessing component to access the mobile communication network.

2. (Previously Presented) The data broadcast receiving apparatus as recited in claim 1, wherein the controlling component includes:

a middleware processing component to process middleware of the data broadcast receiving apparatus, controlling the download processing component, receiving a middleware module and a middleware plug-in software included in the downloadable data from the download processing component; and

an operating component to operate the data broadcast receiving apparatus and controlling the middleware processing component and the mobile terminal accessing component.

3. (Previously Presented) The data broadcast receiving apparatus as recited in claim 1,

wherein the download processing component determines the kind of the downloadable data by using a downloadable data information descriptor describing data broadcast specification information.

4. (Original) The data broadcast receiving apparatus as recited in claim 3, wherein the downloadable data information descriptor includes at least one among Program Specific Information (PSI) of the Moving Picture Experts Group (MPEG)-2 system, Data Service Table (DST) of the Advanced Television Systems Committee (ATSC) data broadcasting, Application Information Table (AIT) of the DVB-Multimedia Home Platform (MHP), and System Information (SI) of the Digital Multimedia Broadcasting (DMB).

5. (Currently Amended) A method for upgrading software by using downloaded data inputted from the outside in a data broadcast receiving apparatus, comprising the steps of:

- a) selecting downloadable data from broadcast stream in the data broadcast receiving apparatus;
- b) determining the kind of the downloadable data;
- c) upgrading the software according to the kind of the downloadable data to provide an upgraded interactive data broadcasting application;
- d) receiving and processing a request for accessing a mobile communication network from the user; and
- e) ~~executing~~ executing ~~an~~ the upgraded interactive data broadcasting application if the user is authenticated to provide the interactive service to the user using a mobile terminal accessing component to access a mobile communication network.

6. (Original) The method as recited in claim 5, wherein the step a) includes:

- a1) monitoring the presence of a downloadable data information descriptor in the broadcast stream; and
- a2) extracting data identification information from the downloadable data information descriptor.

7. (Original) The method as recited in claim 6, wherein the downloadable data information descriptor includes at least one among Program Specific Information (PSI) of the Moving Picture Experts Group (MPEG)-2 system, Data Service Table (DST) of the Advanced Television Systems Committee (ATSC) data broadcasting, Application Information Table (AIT) of the DVB-Multimedia Home Platform (MHP), and System Information (SI) of the Digital Multimedia Broadcasting (DMB).
8. (Original) The method as recited in claim 7, wherein the kind of the downloadable data is determined based on the data identification information in the step b).
9. (Previously Presented) The method as recited in claim 5, wherein the kind of the downloadable data includes a middleware module for accessing a mobile communication terminal and a middleware plug-in.
10. (Original) The method as recited in claim 9, wherein the step c) includes the steps of:
 - c1) upgrading the software by using the middleware module; and
 - c2) upgrading the software by using the middleware plug-in.
11. (Original) The method as recited in claim 10, wherein the step c) includes the steps of:
 - c3) determining whether the version of the downloaded middleware module is the same as the version of the pre-established middleware version; and
 - c4) setting up the downloaded middleware module, if the version of the downloaded middleware module is not the same as the version of the pre-established middleware version.
12. (Original) The method as recited in claim 11, wherein the step c) includes the steps of:
 - c5) suspending an application in execution temporarily; and
 - c6) executing the temporarily suspended application after the setup of the middleware module.
13. (Original) The method as recited in claim 10, wherein the step c2) includes the steps of:

c2-1) checking whether the Multipurpose Internet Mail Extensions (MIME) format of the downloaded middleware plug-in is registered;

c2-2) if the format of the downloaded middleware plug-in is new, registering the format of the downloaded middleware plug-in; and

c2-3) setting up the downloaded middleware plug-in.

14. (Cancelled)

15. (Previously Presented) The method as recited in claim 5, wherein the step d) includes the steps of:

d1) checking whether the downloadable data include a module capable of accessing a mobile terminal;

d2) if the access to the mobile terminal is possible, checking whether the request for accessing the mobile communication network from the user can be executed; and

d3) if the request for accessing the mobile communication network from the user can be executed, accessing the mobile communication network by executing user authentication and a mobile terminal accessing program.

16. (Previously Presented) The method as recited in claim 15, wherein whether the request for accessing the mobile communication network from the user can be executed is determined based on module information of the mobile terminal of the user or communication company information.

17. (Currently Amended) A data broadcast receiving apparatus supporting an interactive service, comprising:

a demultiplexing means for dividing signals from the outside into signals of a kind;

a controlling means for controlling elements of the data broadcast receiving apparatus, receiving and outputting contents divided in the demultiplexing means;

a download processing means for receiving downloadable data divided in the demultiplexing means, determining the kind of the downloadable data, and performing upgrade

by downloading the downloadable data to provide an upgraded interactive data broadcasting application; and

a mobile terminal accessing means for accessing a mobile communication network based on the downloadable data, and, in response to a user request for accessing a mobile communication network, executing the upgraded interactive data broadcasting application to provide the interactive service to the user using the mobile terminal accessing component to access the mobile communication network.